

Application of small-scale scenarios as a mitigation tool to reduce the effects of tsunami-structure interaction

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Abstract. Reducing the effects of tsunamis is dependent on a wide range of interactive factors. These interrelationships can best be conveyed at the local level to the public and to administrators through development of scenarios that hypothesize interrelationships between alternative tsunami characteristics and community characteristics. The tsunami characteristics will include specified force magnitudes as well as such hydrodynamic variables as dispersion, turbulence, and breaking. Local community conditions could include placement of structures on a site, shape of structures, design factors, and response variables. Design factors could include land use, site and building design for groups of structures, including existing older structures and newer structures constructed to more stringent seismic design criteria. Response variables will address disruption of lifelines, including transportation facilities and utilities. The scenarios will address (a) potentiality for significant damage, (b) high disruption and/or life loss, and (c) potentiality for interactive and collateral damage. The presentation will be based on a collaborative research program funded by the National Science Foundation. Through this research collaboration, we will demonstrate how realizable tsunami mitigation is achieved via coupling public policy and planning with the fundamental scientific research.

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